

Visualizations: River Valley Civilization

Introduction

Visualization is a method of visually organizing data, emphasizing the critical thinking of students during the process of organization. Students will use visualization in a cooperative environment with the purpose of analyzing and organizing data specific to the development of a river valley civilization. This activity may be used either before learning occurs, which would require research on the part of the students and a greater investment of time, or after learning occurs, as a method of review and an opportunity to diagnose student learning.

Beyond the content learning that will occur through the lesson, students will have to critical think, evaluating and analyzing the data they are organizing, looking for possible connections.

Standard Indicators

- 7.1.1 Explain the rise of early civilizations in the river valleys of the Tigris and Euphrates in Mesopotamia and along the Nile in Northeastern Africa, including Egypt and Kush.
- 7.1.20¹ Form and respond to historical questions, and use a variety of information resources to find and evaluate historical data on the people, places, events, and developments that have played a part in the history of Africa, Asia, and the Southwest Pacific.
- 7.3.10 Describe the restrictions that climate and landforms place on land use in regions of Africa, Asia, and the Southwest Pacific and be able to discern how patterns of population distribution reflect these restrictions.
- 7.5.4 Examine the impact of cultural change brought about by technological inventions and innovations in the past and present.
- 7.1.18 Analyze cause-and-effect relationships, bearing in mind multiple causation, including the importance of individuals, ideas, human interests, beliefs, and chance in history. Keep in mind that there may be more than one cause for an event or movement.

Materials

For the teacher:

- Dry erase or chalk board
- Dry erase markers or chalk

For the students:

- Butcher Paper
- Scrap Paper
- Pencil
- Coloring Utensils (optional)
- Textbook, library resources, etc. *Note:* These resources are only necessary if the activity occurs prior to student learning.
- BLM 1 Writing Prompt

Activity

A. Activation of Prior Knowledge

¹ Note: This standard indicator is only integrated into the activity if the lesson is used prior to learning.

1. The activity will begin with the teacher introducing the term *visualization*. On the board, record the definition:

Visualization: A method of organizing data visually, showing connections between data. Examples include a data table, concept map, web, etc.

Describe for the students why this might be valuable. Through the use of this type of organization, someone may more easily focus on a facet of the information, understand connections, and see multiple causes and multiple effects may exist. This is an advantage over a timeline, because the linear (singular) nature of a timeline does not allow a user to identify multiple causes or effects.

2. Model the thinking and use of a visualization by organizing a data set that is familiar to both the teacher and the students. For example, organizing the development of video game consoles. Figure 1 is an example of this data set.

NES (Nintendo Entertainment System)	Sega Master System	Play Station
Super Nintendo	Sega Genesis	Play Station 2
X-Box	Play Station 3	X-Box 360
Nintendo Game Cube	Wii	Nintendo 64

The organization may look similar to a web, arrows could be used to indicate the possibility of cause and effect and temporal (time) relationships. While modeling the organization of the data, it is important to verbalize the thinking that is occurring as a part of the analysis.

B. Question Generation and Inquiry

1. Divide the class into collaborative groups and inform the students will now create their own visualization using another data set. A group size of 3-4 is optimal.
2. Review the steps each group will take to complete their own visualization. It is best that this is recorded on the board prior to this review. Alternately, this may be converted to an overhead. The steps:
 - Step 1: Review the data with your group. Discuss possible connections that may exist and how you would be able to best organize the data. *Note: If the activity is being used prior to student learning, this step would also include the development to inquiry questions to help focus student research on the data and the use of resources for research.*
 - Step 2: On a piece of paper, create a rough draft of your visualization. When you have completed the rough draft, confer with the teacher for approval before continuing on to the next step.
 - Step 3: On a piece of butcher paper, create a final draft of your visualization. The final draft will represent quality and show the connections between the data.
3. After reviewing the steps, reveal the data set, indicated in Figure 3, and indicate that the students should begin working. To improve efficiency, the placement of materials that each group will be supplied (scrap paper, butcher paper, etc.) may be placed at a “supply center”.

Figure 3 River Valley Civilization		
Cause	Effect	Cities
City-states	Job specialization	Farming
Hunter-gatherers	River valley	Flooding
Silt	City walls	Immigrants
Invaders	Cultural diffusion	

4. While the teacher should be available for questions, it is best to circulate through the classroom as students work, monitoring their progress. Essential to inquiry is the use of questioning to “mine” for student thinking. For example, asking the students why they selected the format of organization, such as a data table versus a web. The teacher should ask questions to gain insight to student thinking.
5. As a group completes their rough draft, the teacher should review the connections they are making in their visualization. This allows for an informal assessment of student learning, and it is an imperative that *every* student in the group is able to explain the connections that exist in their visualization. If they are unable to, their rough draft should be “sent to the drawing board”, and the group should discuss what they are diagrammed. The teacher should also look for illogical organization, but rather than indicate that the diagram is incorrect, seek clarification, asking why the data is organized in such a manner.
6. Once a group has had their rough draft approved, they should begin work on their final draft. It is suggested that their final draft be given larger dimensions than the rough draft, allowing for public display, either in the classroom or hallway.

C. Class for Understanding

1. As a formal assessment of learning, each student will draft a summary, using their group’s visualization as a resource. This should be placed at the center of each group so each member may easily see it.
2. Distribute BLM 2 to each student. Review the instructions. Indicate to the students that they will be writing a summary. Ask the class “what is a summary?” and call upon a student volunteer. Delve further by asking “what parts of a summary would you expect to see?” Again, call upon a student for clarification. When it is clear that the students understand what they are to do, allow them to begin.
3. Assessment of the summary can easily be done through a rubric. A quick search of the internet provides a variety of assessment tools for such a purpose. BLM 2 indicates the use of the *6 +1 Writing Rubric*, though any teacher-designed rubric may suffice.